

the sclerotic type. Oigaard compared the rate of visualization of the vestibular aqueduct in patients with Meniere disease, in patients with chronic otitis media and in normal persons. The patients with chronic otitis media and those with Meniere disease have similar rates of nonvisualization (51 percent versus 57 percent) whereas in normal persons nonvisualization was only 5 percent.

Meniere disease is probably related to abnormal physiology in the function of the endolymphatic duct and sac with poor resorption of fluid but it does not necessarily follow that bony changes also occur. Present evidence indicates that the bony canals (vestibular aqueduct) are perfectly normal and their configuration changes with the degree of development and pneumatization of the temporal bone. The role of radiology is to rule out acoustic neuromas or other lesions masquerading as Meniere disease.

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### Guided Percutaneous Needle Aspiration of Retroperitoneal and Abdominal Masses

PERCUTANEOUS NEEDLE ASPIRATION TECHNIQUES, which have been employed successfully in evaluating intrapulmonary neoplastic and infectious lesions, now have been applied in the evaluation of intra-abdominal masses. The technique consists of localizing the intra-abdominal mass by a variety of radiologic methods, including fluoroscopy, angiography, ultrasound and computed tomographic scanning, to allow accurate placement of the needle in order to increase the chances of adequate sampling of the abnormal tissue. The biopsy specimen must be carefully handled and prepared, and an experienced cytopathologist must be available to provide accurate interpretation of the small amounts of tissue obtained by this technique.

Current experience indicates that a fine, 23-gauge spinal-type needle should be used because it has been shown that such a needle can traverse a variety of intra-abdominal organs, including

hollow viscera, with no apparent deleterious side effects. (An 18- or 20-gauge thin-walled spinal needle is usually used for percutaneous pulmonary aspiration.) One study indicates an overall diagnostic biopsy yield of 85 percent of cases, without clinical complications.

Proposed indications for this technique include obtaining a histologic diagnosis without surgical operation, the staging of neoplastic diseases and facilitating treatment planning. This technique has been successfully applied to diagnose pancreatic masses, retroperitoneal lymph nodes, and other intra-abdominal and retroperitoneal soft tissue masses.

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### Computed Tomography of the Adrenal Glands

COMPUTED WHOLE BODY TOMOGRAPHY is a non-invasive method of directly imaging the adrenal glands. The high resolution and density discrimination of computed tomography (CT) allows precise delineation of adrenal size, shape and position in almost every patient. The adrenal glands appear as small structures of tissue density surrounded by retroperitoneal fat on computed tomographic cross sections of the abdomen.

Normal adrenal glands may be imaged by computed tomography in more than 85 percent of patients. It is only when there is pronounced loss of retroperitoneal fat or when the patient is unable to suspend respiration or has excessive bowel motion during the CT scan that the adrenal glands are inadequately visualized.

Computed tomography of the adrenal glands in patients with suspected adrenal abnormalities provides information heretofore not easily obtainable. In patients with Cushing syndrome computed tomography has shown bilaterally enlarged but normal shaped adrenal glands in instances of bilateral adrenal hyperplasia. Unilateral adrenal enlargement with distortion of the normal adrenal configuration is found in patients with an adrenal adenoma, carcinoma or cyst. In the evaluation of patients with hypertension, computed tomography of the adrenals has shown both bilateral and unilateral pheochromocytomas and made it pos-